POTASSIUM CONCENTRATION OF MAIZE AS AFFECTED BY KCl AND K_2SO_4.

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ABSTRACT

Potassium concentration in leaf, stalk and grain of maize from two sources was studeid at Research Farm, NWFP Agricultural University, Peshawar. Potassium was applied in both the forms at the rate of 0, 30, 60, 90 and 120 kg K ha^{-1}, alongwith a basal dose of 120 Kg N + 75 kg P_2O_5 ha^{-1} in the form of urea and single superphosphate. Maximum potassium concentration in leaf at tasseling stage was observed due to 120 kg K ha^{-1} followed by 90 kg K ha^{-1}, though nonsignifcant among themselves but highly signifcant than control and lower doses. At tasseling stage, maximum K content was reported due to 120 Kg K ha^{-1} in the form of K_2SO_4. Potassium content in stalk was higher due to K_2SO_4 application than KCl at 120 kg ha^{-1}. Maximum K content in grain was due to 90 kg K ha^{-1}. 120 kg K ha^{-1} decreased K content than 90 kg K ha^{-1} but was significantly higher than control and lower doses.

INTRODUCTION

Potassium, one of the major nutrients is necessary for the activation of various enzymes and photosynthesis. It produces resistance to certain diseases, increases plumpness and promotes growth of meristematic tissues. Moreoever, it exerts a balancing effect both on nitrogen and phosphorus. In Pakistan it is generally applied as sulphate

above findings, this project was initiated to study the effect of two potassium fertilizers on K concentration in leaf, stem and grain of maize.

MATERIALS AND METHODS

The experiment was conducted during 1981-82 at Research Farm, NWFP Agriucltural University, Peshawar to find out the effect of K_2SO_4 VS KCl on concentration of K by various organs of maize (CV. Changez). Design of the experiment was split plot with four replications having 40 sub-plots in all, each measuring 5 x 4 m. K fertilizers were allotted to main plots while K rates were used as sub-plots. Nitrogen and P_2O_5 at the rate of 120 and 75 kg ha^{-1} respectively were applied as a basal dose in the form of urea and single superphosphate. One half dose of nitrogen and full dose of phosphorus were applied at sowing time. Potassium was applied at the rate of 0, 30, 60, 90 and 120 kg ha^{-1}. The crop was planted in rows 60 cm apart with plant to plant distance at 20 cm. Leaf samples for K determination were collected before tasseling and at tasseling stages while grain and stalk were analysed at harvest.